plate of what he regarded to be Linnaeus's *Dolichos unguiculatus*. It is not apparent how Jacquin was misled, but the plant he figured is the catjang (*Vigna catjang*), very often regarded as a variety of the cowpea (*Vigna sinensis*).

In 1842, Walpers, Rep. 1: 779, transferred Linnaeus's species to *Vigna* as *Vigna unguiculata*, with little doubt basing his idea of its identity on the colored plate of Jacquin, though in the meantime the name of Linnaeus had been already taken up by some authors as the oldest name of the cowpea, for example by Guillemin, Perrotet and Richard, Flora Senegamb. Tent. 1830–33.

In many floras *Vigna unguiculata* is quoted as a synonym of *Vigna sinensis* (in a broad sense), and I have been able to find no single instance where it has been otherwise employed.

It was a matter of some surprise, therefore, upon examining Linnaeus's original specimen preserved in the Herbarium of the Linnaean Society, London, to find that it is not the cowpea at all, nor indeed a very close relative. It is in fact the plant recently described by Urban as *Phaseolus antillanus* (Symb. Ant. 4: 309). As the species seems properly referable to *Phaseolus* it will have to bear the name **Phaseolus unguiculatus** (L.). The following collections represent *Phaseolus unguiculatus:* Cuba, Wright, No. 1594, "in Cuba orientale," Sept. 1859–Jan. 1860; Porto Rico, P. Sintenis, No. 2938, Dec. 2, 1885; St. Vincent, H. H. & G. W. Smith, No. 1181, March, 1890.

C. V. Piper

CURRENT LITERATURE

A Supposed Fossil Fern Becomes a Pine Tree.—In a recent number of the *Annals of Botany* (**25**: 903–907. O. 1911) Dr. Marie C. Stopes has printed an interesting paper under the title: "On the True Nature of the Cretaceous Plant *Ophioglossum granulatum* Heer." In this paper Doctor Stopes has conclusively shown that the American specimens of this species, which was named and described originally by Heer from the Patoot beds of Greenland, and later identified by Newberry in the

stratigraphically similar Amboy Clays of New Jersey, is not a fern at all but represents the staminate strobile (aments) of *Pinus*. By carefully dissecting some of the so-called granules of the fruit-spike Doctor Stopes was able to demonstrate the presence of numerous winged pollen grains characteristic of certain of the Pinaceae, especially *Pinus*, and these in conjunction with the association on the specimens of what are with little doubt the leaves of *Pinus*, make its reference to this genus reasonably certain.

Thus far no exception can be taken to the paper, but in the discussion which attends the discovery of the pollen grains, Doctor Stopes, by an ingenious arrangement of quotations, has made it appear that Doctor Newberry was inclined to regard the plant in question as actually referable to *Ophioglossum*. In order, therefore, that Doctor Newberry's views may be made perfectly clear, the following quotation (Fl. Amboy Clays, Monog. U. S. Geol. Surv., **26**: 43. 1895), which represents his whole statement of the subject, is given entire: "Professor Heer has described and figured a peculiar fossil which he regards as the fertile stipe of a fern and compares with the fertile frond of *Ophioglossum vulgatum*. Of this organism numerous examples have been found in the Amboy Clays, two of which are now figured. There can be no mistake about the identity of the plant, but as to its true character there may be great differences of opinion. Most of the specimens show at the base of an ament-like fruit spike one or more slender linear leaves or bracts, which evidently spring from the same stem. These leaves are sometimes as long as the fruit spike or longer, *and to me they seem like the male ament of a conifer rather than the fruit of a fern.*"*

Extended comment is unnecessary. This shows conclusively that Newberry had correctly diagnosed the probable biologic affinity of the organism and simply wished to call attention to the fact that the Patoot beds of Greenland and the Amboy Clays of New Jersey held this species in common. That this correlation is probably correct is attested by a much larger series of specimens than passed under the observation of Doctor Stopes.

* The italics are the reviewer's.

Toward the close of her paper Doctor Stopes indulges in what she is pleased to call certain "moral reflections as to the value of most determinations of fossil plant impressions," and is distressed to conclude that many of these determinations are wholly without proper biologic authenticity. As a means for separating the sheep from the goats Doctor Stopes proceeds as follows: "It seems a good opportunity to urge that the lists published by paleobotanists should be printed in two forms, and that the names of species of leaves, stems, etc., of which there is a reasonable security of determination, should be differentiated from those in which there is no guarantee at all that the actual nature of the plant has been discovered. Any tri-nomial system is cumberous, but those who publish on fossil plants might print their names in type of two kinds, which would indicate which species were doubtful. I would like to suggest that, instead of using italic or ordinary capitals, as is usual in printing the names of species and genera, such doubtful plant impressions should be printed in Gothic lettering. This would indicate that our knowledge about them is mediaeval, of the Dark Ages, and would further save the inconvenience of tri-nomials, while it would indicate immediately the difference between the established and the doubtful determinations. As information occurred about a specimen it could readily be transferred to the clear Latin italics."

Applying this suggestion to *Ophioglossum granulatum* Heer, she adds: "Any worker in another branch of science, seeing **O. granulatum** in Gothic, would be warned at least to look into the grounds for the determination for himself before he—let us imagine—used the record for his stratigraphic work in correlating horizons or in writing up the early history of Ophioglossaceae."

This statement shows not only an astonishing misconception of what a tri-nomial means, and the principles and uses of stratigraphic paleobotany, but leads to interesting speculations as to the practical application of the plan. Suppose, for example, we have a fossil plant in which the genus is known with practical certainty, but we are troubled to decide whether the species is a living one (such an example is afforded by the Fort Union *Corylus americana*). Shall we print the genus in Italic and the species

in Gothic? Suppose we can be certain that one of Heer's plants from Greenland is the same as one found in the Amboy Clays, but we are still in doubt as to the generic reference. Shall we write the genus in Gothic and the species in Italic? And, when all is said and done, who shall be the censor to pass upon the authenticity of the biologic references? Shall we have a high court of appeal to decide when a species is entitled only to Gothic type, or when it is to be permitted to graduate into Italic or full capitals?

Although Doctor Stopes has thoughtfully confined these "moral reflections" to plant impressions only, we can not help thinking that the proposed reform, if adopted, ought also to apply to genera or species founded or identified on internal structure. For instance, would it not be as well to print *Niponophyllum cordaitiforme* Stopes & Fujii in Gothic, pending the decision as to whether it belongs to the Araucarineae, Podocarpineae, Cycadaceae or Cordaitales? Or would it be out of place to "Gothicize" *Cretovarium japonicum* of the same authors until it can be determined whether it is a Monocotyledone or a Dicotyledone?—A. Hollick.

The Indiana Weed Book.—This work by W. S. Blatchley is a piece of botany segregated upon the basis of the subjects being troublesome to the crop grower. So much that can be said of weeds applies with more or less force to other plants that the discussion of the distribution of their seeds by winds, water, birds and passing animals becomes a bright chapter in plant ecology. In the classification of weeds into (1) those of the worst type, (2) less aggressive, and (3) comparatively harmless, the author has not overlooked the benefits that those pests confer by the green covers they provide and the stimulus for better tillage. Apropos of this there are many pages devoted to the best methods of weed extermination, beginning with "(1) Sow clean seeds" and running through crop-rotation, autumn plowing, fewer fences, spraying, etc., to "(15) Make botany a common school study."

Following directly upon this very practical portion, and all

sprinkled with the spice of poetry, is a consideration of the root, stem, leaf, flower, and fruit of weeds, thus preparing the student along strictly botanical lines for the use of the descriptive catalog that makes up the main portion of the work. As a rule the species—arranged by families according to Britton and Brown's Flora—are illustrated by cuts well chosen from many sources.

It is quite clear from this little book—deserving more than a paper cover—that weeds provide a subject of great variety for the study of plants in the many phases of their existence, whether that extends over only a few weeks or through many years. While written especially for Indiana the author has provided a handbook from which any one can gain an interesting and profitable familiarity with many of our more common plants.—B. D. HALSTEAD.

DUNN, S. T., & TUTCHER, W. J. FLORA OF KWANGTUNG AND HONGKONG (CHINA). Kew Bull. Misc. Inf. Addit. Ser. 10: 1–370. Map. 1912.—Kwangtung contains about 68,000 square miles, about one half within the tropics. There is a moderate range in elevation, from sea-level to 3,000 feet, with a few higher mountains about which little is known. The area of Hongkong is only 30 square miles, largely hilly, but it has been carefully explored. Many parts of the mainland are imperfectly known, especially in the southwest; nevertheless, its flora has been more accurately ascertained than that of any other part of China. It may be summarized as follows:

	Families	Genera	Species
Dicotyledons	117	728	1,749
Monocotyledons	25	232	557
Gymnosperms	3	7	11
Pteridophytes	15	42	243
	160	1,009	2,560

The sequence and limits of families are those of Bentham and Hooker; had Engler and Prantl been followed, the number of families would be stated as 181. In practically all cases, the authors have adhered to the nomenclature of the Index Kewensis.

But the book is most noteworthy for other reasons. It is the first which a student of the flora of any province of China can use to identify its plants, for it is provided throughout with keys to families, genera, and species. Indeed, no similar work has yet been completed for any other part of the Far East. A quite unique feature is the combination, in certain cases, of genera of similar habit in a single key.*

The largest family is Leguminosae with 66 genera and 173 species; then follow in order Gramineae, 76 genera, 166 species; Cyperaceae, 21 genera, 126 species; Compositae, 50 genera, 117 species; Orchidaceae, 44 genera, 89 species; Euphorbiaceae, 33 genera, 88 species; Rubiaceae, 34 genera, 86 species; Urticaceae, 25 genera, 70 species; these families taken in the wide sense.

The nearest extra-Chinese regions to Kwangtung are Formosa on the east, the Philippines on the southeast, and Indo-China on the southwest. With the last the transition in floras is probably very gradual, as continues to be the case through Tonkin and Annam into Cochin-China and Cambodia. There is also great similarity between the floras of Kwangtung and Formosa, many of the differences being due to the high mountains of the latter. The distance from eastern Kwangtung to the nearest point in the Philippines is only two thirds of the width of the Chinese province, or one third the length of the Islands, but the flora of the two political divisions is quite different. For example, the numericial order of phanerogamic families in the Philippines is Orchidaceae, Rubiaceae, Leguminosae, together having about 750 more known species than Kwangtung; pteridophytes, also, are three times as numerous. An area less than twice as great cannot accountfor this; the explanation must be sought in higher mountains, and tropical profusion.

It has been found necessary to describe only 15 species as new. This is partly due to earlier publications by the authors themselves as well as by others, for Hongkong alone has 100 endemic species; in part it must be attributed to the fact that

[* By a curious coincidence, and in a widely separated locality, the same procedure has just been followed in the recent admirable flora of the pine barrens by Witmer Stone.—Ed.]

the plants have come from moderate elevations in one portion of a great continent. The work will be of much value to botanical workers in many countries other than that for which it is primarily intended.—C. B. Robinson.

Smith's Bacteria in Relation to Plant Diseases.*—This is the second volume of Dr. Smith's publication and follows the first after an interval of six years. The earlier part discussed the general properties of bacteria, the methods of bacteriological research and so on. It has also proved to be a store-house of useful data and bibliographies. The present volume deals more particularly with the problems of the bacterial pathology of plants, with special reference to the vascular diseases. A great deal of space is given to the consideration of such subjects as the channels of infection in plants, the nature of parasitism, immunity factors, the normal bacterial flora of higher plants, and plant hygiene. All of these topics and many more are handled in the author's chatty and interesting manner. His own high position in his science makes it possible for him to speak in a personal way of many things, for there are few phases of the subject that he has not studied in his long and active career. The difficulty he once found in obtaining recognition for the idea that bacteria may cause disease in plants is echoed in the following paragraph quoted from him.

"The objections to bacterial parasitism in plants have been objections coming from those not familiar with such phenomena, and we all know how difficult it is at first for new ideas to make their way. Such things could not happen because they had not come within the ken of the objector, or because the physical nature of plant-tissues offered (theoretically) an insuperable obstacle to their multiplication, or because plant juices were acid and all known bacteria required an alkaline medium, or because if such diseases existed, one would already have discovered them. All of these objections were the result of inductions based on insufficient evidence. A thousand observations, let us say, con-

* Smith, Erwin F. Bacteria in Relation to Plant Diseases, Vol. II, pp. 1–368. Publication 27, Vol. II, Carnegie Institution of Washington. 1911.

firmed them, but then the thousand and *first* upset them completely."

An English reviewer has objected to the amount of space given by Dr. Smith to the nitrogen bacteria, ginger-beer plant, etc., and also to the full abstracts of other investigators' papers. Now, it seems that neither of these objections is very serious for two reasons: first, the publications of the Carnegie Institution are not intended to be used as text-books by undiscriminating young students but are for specialists who can choose those things in a book that are of most use to them in their own immediate problems; secondly, very few of us are able to read foreign languages with such ease that we *prefer* to do so and, furthermore, to have these abstracts brought together in one place is a saving of time. The author's style of informal discussion increases the readableness of the book, a result not to be scorned even in a scientific publication.

On the whole one may say that this volume is one well worth reading by people interested in botanical, bacteriological or phytopathological matters even if a highly technical knowledge of these subjects is not possessed. To the specialist in this field it should be an inspiration and a mine of valuable data. It is hoped that a third volume will soon appear in which we may find the brilliant researches of Dr. Smith and his co-workers upon the plant tumors.—E. D. C.

PROCEEDINGS OF THE CLUB

March 27, 1912

The meeting of March 27, 1912, was held in the lecture room of the New York Botanical Garden at 3 P.M. Vice-President Barnhart presided. Forty persons were present.

The minutes of the meetings of February 28 and March 12 were approved. The resignations of Mrs. M. E. Soth and F. K. Vreeland were read and accepted and Dr. R. Ellsworth Call, Geo. E. Hastings, and Frank M. Wheat, of the DeWitt Clinton High School, New York City, were elected to membership.